January 2014

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Abstract

Clinical Information need is an important factor for the practicing allopathic medical practitioners. This study aim is to identify the practitioners' clinical information needs level and analysed with their experience and correlate with gender, educational qualification and workplace. Experience is classified into six categories like; 0-5years, 6-10years, 11-15years, 16-20years, 21-25years and above 25 years. **Survey** method is adopted and **pretested questionnaire** is used as a tool for data collection. Salem, Erode, Trippur, Coimbatore, and the Nilagari districts medical practitioners are used for this study. Among the 5290 samples, 10% (529) practitioners are selected by **S**tratified **P**roportionate **R**andom **S**ampling (**SPRS)** method. One-way ANOVA, average weighted score plots and post-hoc tests are used for identification of the significant groups of the medical practitioners. From the result, experience is one of the most influenced factors of the allopathic medical practitioners clinical information needs.

Key Words: Medical practitioners, Clinical Information Needs, Influencing factors

Introduction

Medical Information is playing a vital in the allopathic medical practice. Technological advances have made medical information a new basic resource like matter and energy. It provides knowledge and intelligence to the users. Therefore, information is necessary and the information generated at any point is procured, organized and disseminated expeditiously to its optimum use. Information must be made available at the right time without any barrier (**Sathivel Murugan, 2000**). A qualified medical practitioner, who is entrusted with the physical and mental

well-being of his/her patients, must realize his/her obligations to his/her patients. They must also be aware of their responsibility to the development of the society (**Apurba, 2005**).

As an information-intensive specialty without patient limits of age, gender, or medical profession, family physicians require a number of different resources to cover the broad scope of practice. Critical skill for family physicians is the timely access to that wide variety of clinical information sources that contribute to the decisions in patient care. Specific questions about patient management arise in daily practice with drug prescribing-questions, being the most common type of questions (**Ely et al, 1999**).

The great strides of progress made in the modern medicine, diagnostic techniques, surgery and health care system have raised many problems in respect of standard of patient care, extent of human right protection and adequacy of systems and accountability. Physicians frequently rely on their personal knowledge accumulated over the years of clinical practice for patient care. They also need to update their professional knowledge periodically. They are expected to manage a wide range of medical problems for a broad patient population (**Margaret, 1997**).

Gorman, Yao & Seshadri (2004) undertook a study to determine if the information seeking behaviour of primary care medical staff in rural areas was different to that in non-rural areas. The results showed there were no differences in terms of the number of questions asked, the number of questions pursued and the number of questions answered. This reinforced the earlier work by Dorsch (2000) who reached a similar conclusion.

General practitioners (GPs) occupy a position of pivotal importance in the primary care led National Health Service (NHS). The effective management of the patient experience and input to organizational structures and quality assurance processes are critical. Hence, knowledge services for primary care staff must be found on a close understanding of all the target user groups. It is vital that information provision meets the priorities and preferences of General Practitioners (**Sathivelmurugan & Allysornam, 2011**). There are two main reasons for clinical Information needs of the physicians, viz., 1) to find or obtain answer to patients' specific questions that cannot be answered through their personal knowledge alone, and 2) to keep abreast of the developments in clinical practice (**Karen, 2008**). Clinical Information Need - The

need for information by doctors in the patient care setting as a tool to manage the patient's care. This is a different process from information use in an academic setting for teaching, research and publication. In the medical field, clinical information needs are principally generated by treating patients (**Smith, 1996**).

Majority of the medical practitioners (83-100%) want updates on information pertaining to drugs and medical products/equipments clinical practice require more information on drugs (100%), new medical products/equipments (73-76%) drug information (60-100%) (**Shafi & Mudassir, 2011**)

Patient care, keeping up-to-date, research, writing for publication, teaching, patient education,(**Tsafrir & Grinberg, 1998**), Drug Information for 2nd and 3rd Cancer (**Strasser, 1978**), Disease related 49%, Drug related 23%, treatment procedure related 19%, (**Northup et al, 1983**), Treatment 31%, Diagnosis 25%, Drug related 14%, General medicine 48%, Dermatology 11% (**Covell et al, 1985**), Drug related 38%, Laboratory tests 25% (**Williamson et al, 1989**) Treatment 77%, Differential diagnosis 75%, Drug related 64%, Diagnosis 55%, Treatment 33%, Orthopaedics 29%, Internal medicine 26% (**Woolf et al, l989**) Specific patient 61%, Treatment 25% (**Osheroff et al, 1991**), Treatment 73%, Drug related 49%, Diagnosis 27% (**Ely et al 1992),** Treatment 34%, Diagnosis 28%, Drug related 18%, (**Bowden et al,1994**), Treatment 24%, Drug related 18% (**Guise et al, 1994**) are the needed information for the medical practitioners.

Medical practitioner's clinical information need is analysed with gender, educational qualification and workplace was done by **Sathivelmurugan, Allysornam, & Mohankumar**. These results are as follows, gender of the medical practitioners and differential diagnosis, drug adverse effects and preparation of guest lecture/CME information needs have 5% level of statistical significant difference and diagnostic-procedures, disease-description, disease-prognosis, and treatment-efficacy have 1% level of significant difference. There is a significant difference between the educational qualification of the practitioners and the following information needs, clinical-epidemiology, diagnosis/etiology, disease-description, emergency-protocol, higher-education, preparation of guest lecture/CME and treatment efficacy. The following information needs, clinical-epidemiology, etiology, differential-diagnosis, disease-complications, disease-descriptions, disease-prognosis, drugs adverse effects, *diagnostic-*

procedures, emergency-protocol, higher-education, patient-education, preparation of guest lecture/CME, research and publication, treatment including drug-therapy, treatment-efficacy have significant difference (either @ 1% or @ 5% level) between the workplace.

The age of the physician is one of the characteristic that influences preferences for information sources. Younger physicians appear to make greater use of medical literature and of colleagues than did their older counterparts. In contrast, older physicians more often used pharmaceutical representatives and preferred CME courses for seeking the medical information (**Stinson, 1980**), (**Lockyer, 1985**) and these differences may not be attributable simply to differences in level of experience. Gruppen and colleagues found that the level of experience, either in general or with a particular problem, did not influence the physicians' preferences for different information sources (**Gruppen , 1988**)

Objectives of this study

This study was set out to understand the clinical information needs of the allopathic medical practitioners' in Tamilnadu. It is analysed with experience. The main objectives of the present study is as follows,

1. To find out the level of clinical information needs of the medical practitioners
2. To correlate the clinical information needs with Gender, educational qualification and workplace of the practitioners.

Methodology

This study adopts a descriptive survey type of research design. The study population is selected from the following districts Salem, Erode, Tirppur, Coimbatore and the Niligris in Tamilnadu, India. Indian Medical Council, New Delhi recognized qualified medical practitioners are involved this study. Educational qualification of the study sample is MBBS, MBBS with Diploma in various disciplines and MD/MS/DNB. Doctors are doing their practice in government side, private practice and both. Government Doctors lists are collected from the **Joint Director of Health and Family Welfare** office and the private practitioners lists are collected **I**ndian **M**edical **A**ssociation (**IMA**) members in each district branches are the sample collection sources. Doctors' lists are updated in MS-Excel for the application of sample selection

method. Experience of the practitioner is classified in to six categories like; 0-5years, 6-10years, 11-15years, 16-20years, 21-25years and above 25 years.

Among the total samples (5290), 10% of samples (529) are used for this study. **S**tratified **P**roportionate **R**andom **S**ampling (**SPRS**) method was adopted for sample selection procedure. Medical college teaching faculties and other branches of medicine are excluded. Similarly, those who are not in the government side and not enrolled as a member of IMA are not included.

Keeping the view of objectives, survey method is adopted for collection of primary data. Questionnaire is a tool. It is structured, preplanned, logically sequence, and also pretested. Simple average, One-way ANOVA, Weighted average score plots and Post-hoc test.

Hypothesis

There is no significant difference between the medical practitioners experience and their need of clinical information.

Analysis

Table 1 Details of the Medical Practitioners Experience, Educational Qualification, and Gender

Educational Qualification			Experience in years						Total
			0-5	6 to 10	11 to15	16 to 20	21 to 25	above 25	
UG	Gender	Male	19(57.6)	5(45.5)	8(72.7)	11(57.9)	8(61.5)	20(83.3)	71(63.96)
		Female	14(42.4)	6(54.5)	3(27.3)	8(42.1)	5(38.5)	4(16.7)	40(36.04)
	Total		**33(29.73)**	**11 (9.91)**	**11 (9.91)**	**19(17.12)**	**13(11.71)**	**24(21.62)**	**111 (20.98)**
PGD	Gender	Male	6(31.6)	17(43.6)	19(44.2)	22(56.4)	7(46.7)	5(50)	76(46.06)
		Female	13(68.4)	22(56.4)	24(55.8)	17(43.6)	8(53.3)	5(50)	89(53.94)
	Total		**19(11.52)**	**39(23.64)**	**43(26.06)**	**39(23.64)**	**15(9.09)**	**10(6.06)**	**165(31.19)**
PG	Gender	Male	10(83.3)	38(74.5)	36(63.2)	44(77.2)	21(47.7)	25(78.1)	174(68.83)
		Female	2(16.7)	13(25.5)	21(36.8)	13(22.8)	23(52.3)	7(21.9)	79(31.23)
	Total		**12(4.74)**	**51(20.16)**	**57(22.53)**	**57(22.53)**	**44(17.39)**	**32(12.65)**	**253(47.83)**
Over all Total			**64 (12.10)**	**101 (19.09)**	**111 (20.98)**	**115 (21.74)**	**72 (13.61)**	**66 (12.47)**	529

(Figures in parenthesis is consider as % age)

Cross sectional Table 1 reveals the medical practitioners' educational qualification, experience, and gender. It could be seen that out of the total medical practitioners(529), 111(20.98%), 165(31.19%) and 253(47.83%) are UG, PGD and PG qualified medical practitioners. Among the total practitioners, 321(60.68%) are males and 208(39.32%) are females.

Out of 529 practitioners, 64(12.10%) of them have 0-5years of experience. Remaining, 101(19.09%) of the practitioners have 6-10years experience, 111(20.98%) of them have 11-15years experience, 115(21.74%) have 16-20years experience, 72(13.61%) of them have 21 – 25 years of experience, and 66(12.47%) of the practitioners have above 25years experience in allopathic medical practice.

Further it is clear from the table that, among the 111 UG practitioners (20.98%), 71(63.96%) are males and 40(36.036%) are females. In respect of 165 PGD qualified practitioners (31.191%), 76(46.06%) are males, 89(53.94%) are females. Among the 253 PG practitioners (47.83%), 174(68.83%) are male practitioners and 79(31.23%) are female practitioners.

Clinical Information Needs

The clinical information needs of the medical practitioners are clinical epidemiology, etiology, differential diagnosis, disease descriptions, disease complications, disease prognosis, , diagnostic procedures, treatment including drug therapy, drugs adverse effects, treatment efficacy, follow-up and emergency protocol. The following tables show the practitioners' frequency of clinical information needs and statistical application.

Table 2 depicts the medical practitioners' experience and their clinical information needs. From the table reveals that, 12.9% of the 0-5years, 20.30% of the 6-10years, 23.20% of the 11-15years, 21% of the 16-20years, 14.80% of the 21-25years, and 7.70% of the above 25years of experienced practitioners always need the **clinical epidemiology** information. Among the total practitioners (529), 28.544% of them occasionally, 22.684% of the practitioners sometimes and 21.739 % of the practitioners rarely need clinical epidemiology information for their clinical practice. The practitioners' clinical epidemiology information needs are not the same. It is further analysed using statistical tools.

Diagnosis/etiology information need is shown in table 2. It could be noted that among the practitioners, 59.375% of the 0-5years experienced practitioners, 65.347% of the 6-10years, 45.478% of the 11-15years, 43.478% of the 16-20years, 56.944% of the 21-25years, and 34.848% of the above 25years experienced practitioners always need diagnosis/etiology information. However, among the total practitioners (529), 50.851 % of the practitioners always, 34.026% of them sometimes and 9.263% of them occasionally require diagnosis/etiology information [(5)].

It could be noted that significance is found in the need of the **diagnostic procedures** information and the educational qualification of the practitioners. 68.75 %, 69.307%, 63.063%, 53.043%, 63.889%, and 39.394%, of the 0-5years, 6-10years, 11-15years, 16-20years, 21-25years and above 25years experienced practitioners always need diagnostic procedures information. Nearly 60% of the total practitioners always need this information, 29.868% and 6.049% of them sometime and occasionally require diagnostic procedures information for their professional clinical diagnosis.

A keen observation of the data, significant is noted the experience of the practitioners and **differential diagnosis** information need. 68.750% 0-5years experienced practitioners, 70.297% of the 6-10years, 63.964% of the 11-15years, 60% of the 16-20years, 70.833% of the 21-25years, and 48.485% of the above 25years experienced practitioners always need differential diagnosis information. However, 63.894 % of the total practitioners always, 27.410 % of them sometimes and 5.482% of the practitioners occasionally need differential diagnosis information for practice. Significance is analysed by using statistical analysis.

Out of the 64, 0-5years experienced practitioners, 62.5% always need disease description information. Similarly, 62.376 % of the 6-10years, 64.865 % of the 11-15years, 56.522 % of 16-20years, 63.889% of 21-25years, and 36.364% of the above 25years experienced practitioners always need disease description information. Among the total practitioners (529), 58.601% always need this information, 29.490% sometimes and 6.616% of the practitioners occasionally require **disease description** information. Never need % is less than 5.

Need of the **disease complication** information % is shown in the table 2. From the table, 73.438%, 72.77%, 63.964%, 60%, 62.5%, and 39.394% of the 0-5years, 6-10years, 11-16years, 16-20years, 21-25years, and above 25years of experienced practitioners always need the disease

complication information for their regular practice. Among the total practitioners (529), 62.571% of the practitioners always, 26.276% of them sometimes and 6.427 % of them occasionally need this information. Significance is further analysed by the application of statistical tools.

67.188% of the 0-5years of experienced practitioners always need **disease prognosis** information. Similarly, 72.77% of 6-10years, 61.261% of the 11-15years, 55.652% of the 16-20years, 56.944% of the 21-25years, and 45.455% of the above 25years experienced practitioners always need and use the disease prognosis information for their practice. Among the total practitioners (529), 60.302% always, 26.276% sometimes and 8.507 % occasionally need disease prognosis information. It could be analysed by one way-ANOVA test and the significant groups can be found out by post-hoc test.

Need of the **disease complication** information % is shown in the table 2. From the table, 73.438%, 72.77%, 63.964%, 60%, 62.5%, and 39.394% of the 0-5years, 6-10years, 11-16years, 16-20years, 21-25years, and above 25years of experienced practitioners always need the disease complication information for their regular practice. Among the total practitioners (529), 62.571% of the practitioners always, 26.276% of them sometimes and 6.427 % of them occasionally need this information. Significance is further analysed by the application of statistical tools.

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Table 2 Descriptive details of the Clinical Information Needs of Medical Practitioners according to their Experience

Years	Clinical epidemiology						Diagnosis / etiology				
	Never	Rarely	Occasionally	Sometimes	Always	Total	Never	Rarely	Occasionally	Sometimes	Always
0-5	10 15.625	8 12.5	19 29.688	18 28.125	9 14.063	64	1 1.563	0	4 6.250	21 32.813	38 59.375
5 to 10	16 15.842	24 23.762	28 27.723	27 26.733	6 5.941	101	4 3.960	0	11 10.891	20 19.802	66 65.347
11 to 15	15 13.514	30 27.027	27 24.324	27 24.324	12 10.811	111	5 4.505	0	6 5.405	49 44.144	51 45.946
16 to 20	15 13.043	25 21.739	44 38.261	18 15.652	13 11.304	115	4 3.478	3 2.609	12 10.435	46 4	50 43.478
20 to 25	8 11.111	16 22.222	21 29.167	12 16.667	15 20.833	72	1 1.389	3 4.167	5 6.944	22 30.556	41 56.944
above 25	15 22.727	12 18.182	12 18.182	18 27.273	9 13.636	66	9 13.636	1 1.515	11 16.667	22 33.333	23 34.848
Total	79 14.934	115 21.739	151 28.544	120 22.684	64 12.098	529	24 4.537	7 1.323	49 9.263	180 34.026	269 50.851
Years	**Diagnostic procedure**					**Total**	**Differential diagnosis**				
	Never	**Rarely**	**Occasionally**	**sometimes**	**Always**		**Never**	**Rarely**	**Occasionally**	**Sometimes**	**Always**
0-5	0	0	1 1.563	19 29.688	44 68.750	64	1 1.563	0	3 4.688	16 25	44 68.750
5 to 10	3 2.970	0	8 7.921	20 19.802	70 69.307	101	1 0.990	0	4 3.960	25 24.752	71 70.297
11 to 15	0	1 0.901	6 5.405	34 30.631	70 63.063	111	2 1.802	0	7 6.306	31 27.928	71 63.964
16 to 20	3 2.609	1 0.870	11 9.565	39 33.913	61 53.043	115	3 2.609	0	8 6.957	35 30.435	69 6
20 to 25	1 1.389	0	1 1.389	24 33.333	46 63.889	72	0	0	2 2.778	19 26.389	51 70.833
above 25	13 19.697	0	5 7.576	22 33.333	26 39.394	66	9 13.636	1 1.515	5 7.576	19 28.788	32 48.485
	20 3.781	2 0.378	32 6.049	158 29.868	317 59.924	529	16 3.025	1 0.189	29 5.482	145 27.410	338 63.894

(Figures in parenthesis is consider as % age)

Years	Disease description					Total	Disease complications				
	Never	Rarely	Occasionally	Sometimes	Always		Never	Rarely	Occasionally	Sometimes	Always
0-5	1 1.563	1 1.563	3 4.688	19 29.688	40 62.500	64	1 1.563	1 1.563	4 6.250	11 17.188	47 73.438
5 to 10	2 1.980	0	4 3.960	32 31.683	63 62.376	101	1 0.990	0	11 10.891	16 15.842	73 72.277
11 to 15	2 1.802	0	9 8.108	28 25.225	72 64.865	111	4 3.604	2 1.802	1 0.901	33 29.730	71 63.964
16 to 20	3 2.609	0	10 8.696	37 32.174	65 56.522	115	3 2.609	0	7 6.087	36 31.304	69 6
20 to 25	5 6.944	0	2 2.778	19 26.389	46 63.889	72	1 1.389	0	5 6.944	21 29.167	45 62.500
above 25	13 19.697	1 1.515	7 10.606	21 31.818	24 36.364	66	12 18.182	0	6 9.091	22 33.333	26 39.394
	26 4.915	2 0.378	35 6.616	156 29.490	310 58.601	529	22 4.159	3 0.567	34 6.427	139 26.276	331 62.571
Years	**Disease prognosis**					**Total**	**Treatment and drug therapy**				
	Never	**Rarely**	**Occasionally**	**Sometimes**	**Always**		**Never**	**Rarely**	**Occasionally**	**Sometimes**	**Always**
0-5	1 1.563	0	4 6.250	16 25.000	43 67.188	64	0 0	0 0	1 1.563	14 21.875	49 76.563
5 to 10	0 0	0 0	10 9.901	18 17.822	73 72.277	101	1 0.990	0	3 2.970	16 15.842	81 80.198
11 to 15	2 1.802	0	11 9.910	30 27.027	68 61.261	111	1 0.901	3 2.703	7 6.306	22 19.820	78 70.270
16 to 20	6 5.217	0	7 6.087	38 33.043	64 55.652	115	0 0	0 0	2 1.739	33 28.696	80 69.565
20 to 25	2 2.778	2 2.778	6 8.333	21 29.167	41 56.944	72	2 2.778	0	0	19 26.389	51 70.833
above 25	9 13.636	1 1.515	7 10.606	19 28.788	30 45.455	66	5 7.576	0	6 9.091	13 19.697	42 63.636
	20 3.781	3 0.567	45 8.507	142 26.843	319 60.302	529	9 1.701	3 0.567	19 3.592	117 22.117	381 72.023

(Figures in parenthesis is consider as % age)

Years	Drugs adverse effects					Total	Treatment efficacy				
	Never	Rarely	Occasionally	Sometimes	Always		Never	Rarely	Occasionally	Sometimes	Always
0-5	1	0	4	15	44	64	0	3	6	16	39
	1.563		6.250	23.438	68.750			4.688	9.375	25.000	60.938
5 to 10	1	0	6	31	63	101	3	1	13	25	59
	0.990		5.941	30.693	62.376		2.970	0.990	12.871	24.752	58.416
11 to 15	1	0	12	31	67	111	2	6	8	42	53
	0.901		10.811	27.928	60.360		1.802	5.405	7.207	37.838	47.748
16 to 20	3	0	13	30	69	115	6	5	16	28	60
	2.609		11.304	26.087	60		5.217	4.348	13.913	24.348	52.174
20 to 25	1	2	2	24	43	72	3	3	8	18	40
	1.389	2.778	2.778	33.333	59.722		4.167	4.167	11.111	25.000	55.556
above 25	12	0	8	12	34	66	14	1	11	14	26
	18.182		12.121	18.182	51.515		21.212	1.515	16.667	21.212	39.394
	19	2	45	143	320	529	28	19	62	143	277
	3.592	0.378	8.507	27.032	60.491		5.293	3.592	11.720	27.032	52.363
	Follow-up						Emergency Protocol				
Years	Never	Rarely	Occasionally	Sometimes	Always	Total	Never	Rarely	Occasionally	Sometimes	Always
0-5	0	5	10	13	36	64	0	8	15	16	25
	0	7.8125	15.625	20.313	56.25		0	12.5	23.4375	25	39.063
5 to 10	0	4	23	24	50	101	1	3	26	23	48
	0	3.960	22.772	23.762	49.505		0.990	2.970	25.743	22.772	47.525
11 to 15	0	12	26	34	39	111	2	19	35	24	31
	0	10.811	23.423	30.631	35.135		1.802	17.117	31.532	21.622	27.928
16 to 20	6	3	29	37	40	115	0	5	31	34	45
	5.217	2.609	25.217	32.174	34.783		0	4.348	26.957	29.565	39.130
20 to 25	2	9	22	16	23	72	3	7	31	19	12
	2.778	12.500	30.556	22.222	31.944		4.167	9.722	43.056	26.389	16.667
above 25	8	2	7	9	40	66	11	4	9	14	28
	12.121	3.030	10.606	13.636	60.606		16.667	6.061	13.636	21.212	42.424
	16	35	117	133	228	529	17	46	147	130	189
	3.025	6.616	22.117	25.142	43.1		3.214	8.696	27.788	24.575	35.728

(Figures in parenthesis is consider as% age)

Regarding treatment including **drugs therapy** information, 76.563% of the 0-5years of experienced practitioners, 80.198% of the 6-10years, 70.270% of the 11-15years, 69.565% of the 16-20years, 70.833% of the 21-25years, and 63.636% of the above 25years of the experienced practitioners always need this information. Out of the total practitioners (529), 72.023% of the practitioners always, 14.229% sometimes and 3.592% occasionally need the treatment drugs therapy information.

Among the 0-5years of the experienced practitioners 68.750%, 62.376% of the 6-10years, 60.360% of the 11-15years, 60% of the 16-20years, 59.722% of the 21-25years, and 51.515% of the PG practitioners always require the **drugs adverse effect** information during their practice. It is clear from the data, among the total medical practitioners(529), 60.491% always need this information, 27.032 % of them sometimes and 8.507 % of them occasionally need. Never need this information % is less than 4.

60.938% of the 0-5years experienced medical practitioners, 58.416% of the 6-10years, 47.748% of the 11-15years, 52.174% of the 16-20years, 55.556% of the 21-25years, and 39.394% of the above 25years experienced practitioners always need **treatment efficacy** information. It develops the clinical proficiency of the practitioners. Among the total practitioners (529), 52.363% of the practitioners always, 27.032% sometimes and 11.720% of them occasionally need treatment efficacy information.

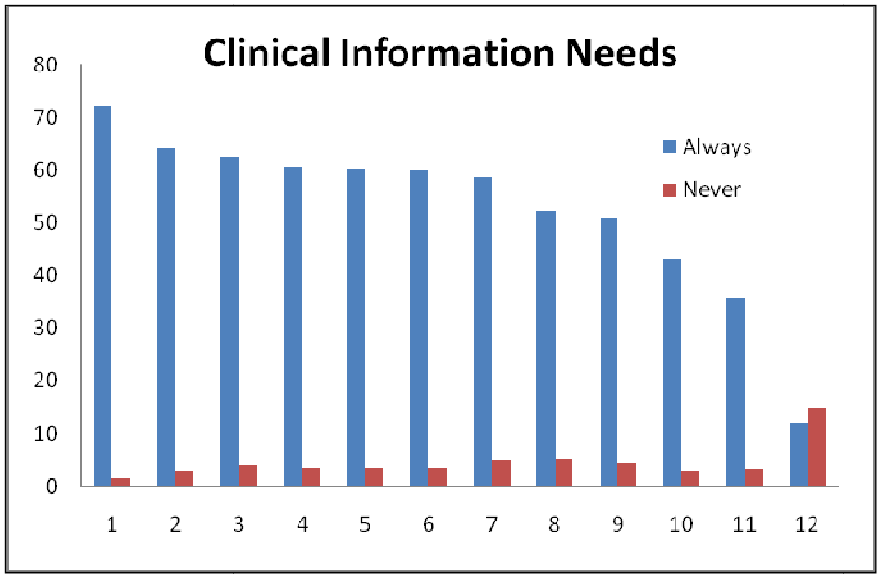
As per treatment **follow-up** information, 56.25% of the 0-5years of the experienced practitioners, 49.505% of the 6-10years, 35.135% of the 11-15years, 34.174% of the 16-20years, 31.944% of the 21-25years, and 60.606% of the above 25years experienced practitioners always require this information. Among the total practitioners (529), 43% always need treatment follow-up information, 25.142% sometimes and 22.117% occasionally need treatment follow-up information.

Regarding **emergency protocol** information, 39.062%, 47.525%, 27.928%, 39.130%, 16.667%, 42.424% of the of the 0-5years, 6-10years, 11-16 years, 16-20years, 21-25years, and above 25years of experienced practitioners always need this information. However, among the total sample (529), 35.728% of them always, 27.788% of them occasionally and 24.575% of the medical practitioners sometimes require this information.

Table 3 Comparative details of clinical Information needs of Practitioners

S.No.	Clinical Information	Always	Never
1.	Treatment Drug Therapy	72.023	1.701
2.	Differential Diagnosis	63.894	3.025
3.	Disease Complication	62.571	4.159
4.	Drugs Adverse Effects	60.491	3.592
5.	Disease Prognosis	60.302	3.781
6.	Diagnostic Procedures	59.924	3.781
7.	Differential Description	58.601	4.915
8.	Treatment Efficacy	52.363	5.294
9.	Diagnosis / Etiology	50.851	4.534
10.	Follow-up	43.100	3.025
11.	Emergency Protocol	35.728	3.214
12.	Clinical Epidemiology	12.098	14.934

Table 3 shows the comparison of the practitioners always (rank is 5) and never (rank is 1) need % age for clinical information. Practicing practitioners always need of the clinical information % age is in double digit. It is reversed for never need % ages except the need of clinical epidemiology information. Follow-up, emergency protocol and clinical epidemiology information always need % age is less than fifty and the remaining information needs % age is above fifty. Among the listed information treatment drug therapy, differential diagnosis and disease complication information takes the top three. The following chart shows the comparison.



One way ANOVA: Experience and Clinical Information Needs.

Medical practitioners' clinical information needs are analysed with experience. One-way ANOVA test for significance, weighted average scores plots and post-hoc test for identification of significant groups were used. The following null and alternative hypotheses are framed to test the data.

H_0: There is no significant difference between the experience of the medical practitioners and their clinical information needs.

H_1: There is a significant difference between the experience of the medical practitioners and their clinical information needs.

Table 4 ANOVA test: Clinical Information Need and Experience

Clinical Information	**ANOVA**					
		Sum of Squares	df	Mean Square	F	Sig.
Clinical epidemiology	Between Groups	6.396	5	1.279	.837	0.0524^{NS}
	Within Groups	799.422	523	1.529		
	Total	805.819	528			
Diagnosis / etiology	Between Groups	25.469	5	5.094	5.301	0.000**
	Within Groups	502.587	523	.961		
	Total	528.057	528			
Diagnosis procedure	Between Groups	41.641	5	8.328	10.807	0.000**
	Within Groups	403.032	523	.771		
	Total	444.673	528			
Differential diagnosis	Between Groups	23.537	5	4.707	6.751	0.000**
	Within Groups	364.656	523	.697		
	Total	388.193	528			
Disease description	Between Groups	41.476	5	8.295	9.131	0.000**
	Within Groups	475.110	523	.908		
	Total	516.586	528			
Disease complications	Between Groups	34.917	5	6.983	8.219	0.000**
	Within Groups	444.383	523	.850		
	Total	479.301	528			
Disease prognosis	Between Groups	23.647	5	4.729	5.490	0.000**
	Within Groups	450.568	523	.862		
	Total	474.216	528			
Treatment and drug therapy	Between Groups	9.420	5	1.884	3.532	0.004**
	Within Groups	278.965	523	.533		

	Total	288.386	528			
Drugs adverse effects	Between Groups	24.831	5	4.966	6.004	0 .000**
	Within Groups	432.598	523	.827		
	Total	457.429	528			
Treatment efficacy	Between Groups	32.720	5	6.544	5.539	0.000**
	Within Groups	617.931	523	1.182		
	Total	650.650	528			
Follow-up	Between Groups	17.767	5	3.553	3.041	0.010*
	Within Groups	611.140	523	1.169		
	Total	628.907	528			
Emergency Protocol	Between Groups	35.681	5	7.136	6.039	0.000**
	Within Groups	618.035	523	1.182		
	Total	653.716	528			

**** 1% level of significance; * 5% level of significance; NS =Not significant**

From the above one-way anova table results, it can be inferred that there is no significant difference between the experience of the medical practitioners and their need for clinical epidemiology information. Hence, the framed null hypothesis is accepted.

However, the following clinical information needs; diagnosis/etiology (1%), diagnosis procedures (1%), differential diagnosis (1%), disease descriptions (1%), disease complications (1%), disease prognosis (1%), treatment including drug therapy (1%), drugs adverse effects (1%), treatment efficacy (1%), follow-up (5%) and emergency protocol (1%) have significant difference between the experience of the medical practitioners. Hence, null hypothesis is rejected. Post-hoc test is shown below for identification of significant groups. Weighted average score plots are shown below.

Table 4 Post-hoc Test: Identification of Significant groups

Clinical Information Needs	Group – 1	Group – 2	Group-3
Clinical Epidemiology	0-5 =3.13 ; 6-10=2.83 ; 11-15=2.91; 16-20=2.90 21-25=3.14 ; Above 25 =2.91		
Diagnosis / Etiology	above 25 =3.74	0-5 =4.48 6-10=4.43 11-15=4.27 16-20=4.17 21-25=4.38	

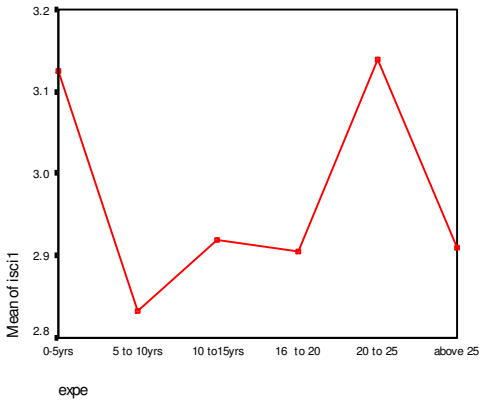
Diagnostic Procedures	above 25 = 3.73	5-10 = 4.52 11-15=4.56 16-20 = 4.34 21-25 = 4.58	0-5 =4.67 5-10 = 4.52 11-15=4.56 21-25=4.58
Differential Diagnosis	above 25 = 3.97	0-5 =4.59 6-10=4.63 11-15=4.52 16-20=4.45 21-25=4.68	
Disease Description	above 25= 3.64	0-5 =4.50 6-10=4.52 11-15=4.51 16-20=4.40 21-25=4.40	
Disease Complications	above 25 = 3.36	0-5 =4.59 6-10=4.58 11-15=4.49 16-20=4.46 21-25=4.51	
Disease Prognosis	above 25 = 3.91	0-5 =4.56 6-10=4.62 11-15=4.46 16-20=4.34 21-25=4.35	
Treatment including Drug therapy	above 25 = 4.32	0-5 =4.75 6-10=4.74 11-15=4.56 16-20=4.68 21-25=4.63	
Drugs Adverse Effects	above 25 = 3.85	0-5 =4.58 6-10=4.53 11-15=4.47 16-20=4.41 21-25=4.47	
Treatment Efficacy	above 25 = 3.56	0-5 =4.42 6-10=4.35 11-15=4.24 16-20=4.14 21-25=4.24	
Follow up	20-25=3.68 16-20=3.89 10-15=3.90	0-5 =4.25 5-10=4.19 10-15=3.90 16- 20= 3.89 above 25= 4.08	
Emergency Protocol	10-15=3.57 20-25=3.42 above 25 = 3.67	0-5 =3.91 10-15=3.57 above 25=3.67	0-5= 3.91 5-10=3.91 16-20=4.03

There is no significant difference between experience of the practitioners and the need of clinical epidemiology. It is a homogeneous subset.

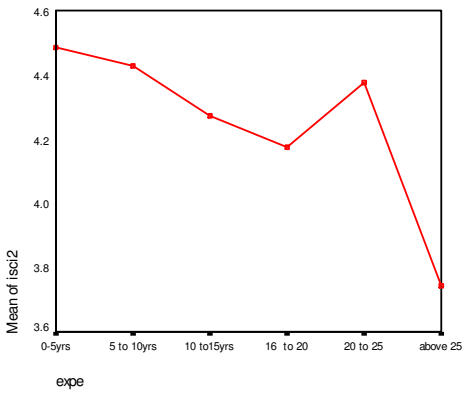
The mean of above 25years experienced practitioners' diagnosis/etiology, Diagnostic Procedures, Differential Diagnosis, Disease Description, Disease Prognosis, Treatment including Drug therapy, Drugs Adverse Effects, Treatment Efficacy and Follow up is form a sub set 1. The means of diagnostic procedures information needs of 0-5years, 11-15years, 16-20 years, and 21-25years experienced practitioners are form a subset-2. It is a homogeneous subset. There is no significant difference between the subset-2 practitioners. However, there is a significant difference in the experience in the subset-1 and subset-2 practitioners.

The means of a 10-15years, 21-25years above 25years experienced practitioners' emergency protocol information need are 3.57, 3.42, and 3.67. It forms subset-1. There is no significant difference between these three grouped practitioners' and their need of emergency protocol information need. The means of emergency protocol information needs of 0-5years, 11-15years, and above 25years experienced practitioners are 3.91, 3.57 and 3.67. These four means form a subset-2. It is a homogenous subset-2. There is no significant difference between the 0-5years, 11-15years and above 25years experienced practitioners and their emergency protocol information needs. Similarly, 0-5years, 6-10years, and 16-20years, experienced practitioners' means are 3.91, 3.91, and 4.03. It forms a subset-3. There is no significant difference between the subset-2 practitioners and their emergency protocol information needs However, there is significant difference in the subset-1, subset-2, and subset-3 practitioners and their need of emergency protocol information.

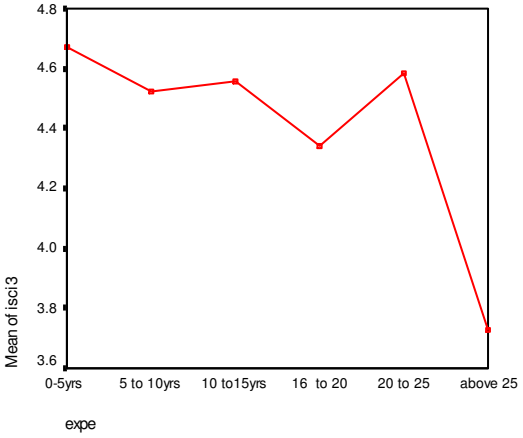
Clinical Epidemiology



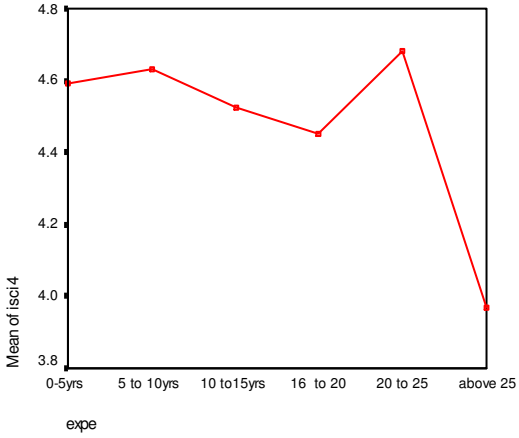
Diagnosis /Etiology



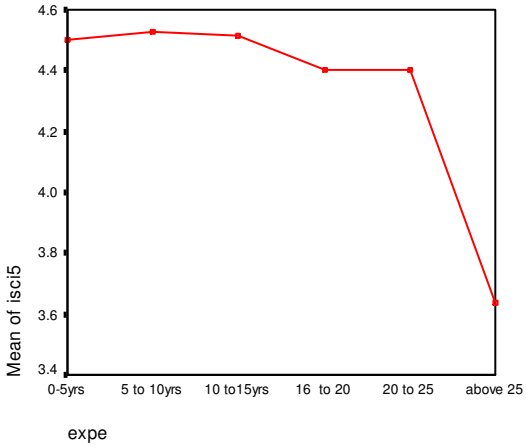
Diagnostic Procedure



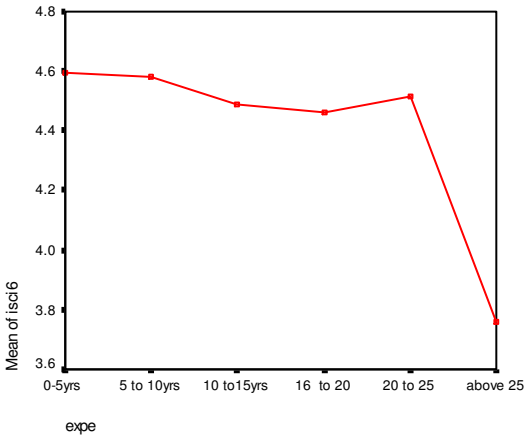
Differential Diagnosis



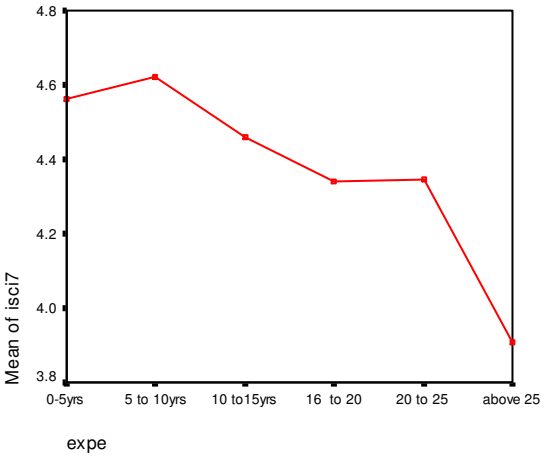
Disease Descriptions



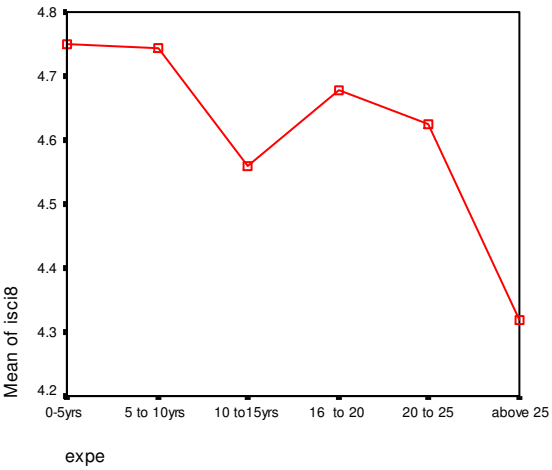
Disease Complications



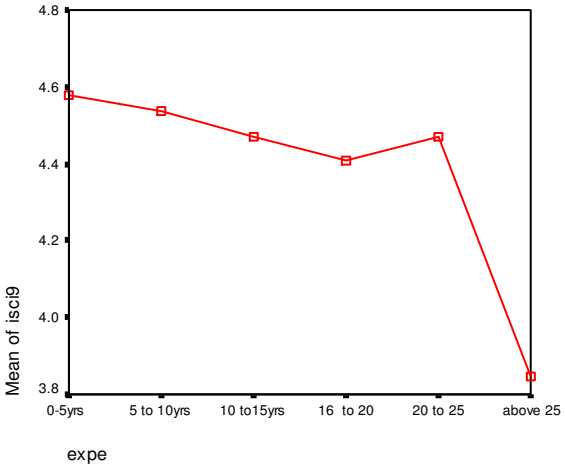
Disease Prognosis



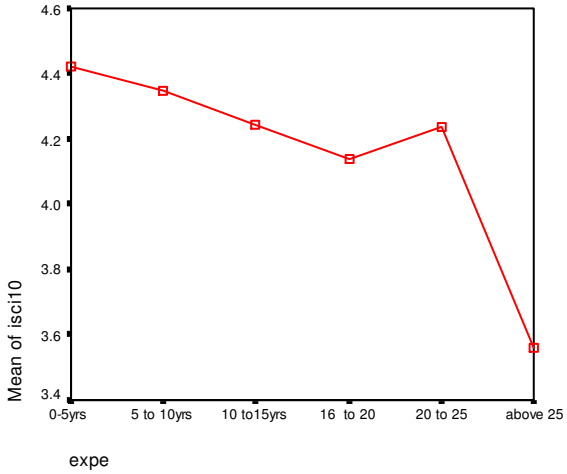
Treatment and Drug Therapy



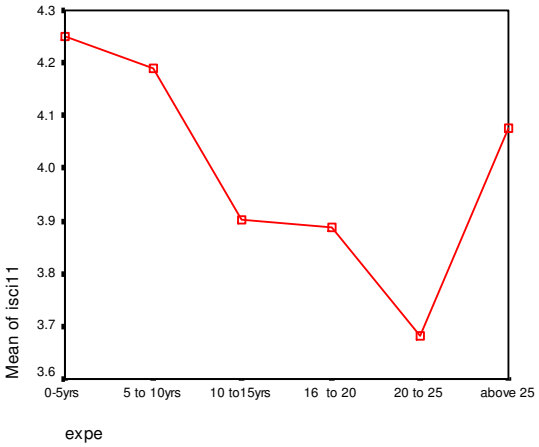
Drugs Adverse Effects



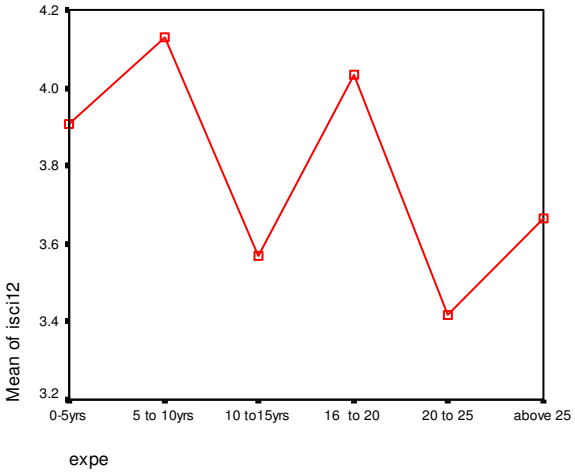
Treatment Efficacy



Follow-up



Emergency Protocol



Findings

1. Among the listed clinical information, treatment drug therapy, differential diagnosis and disease complication information needs takes the top three positions.

2. Among the total practitioners (529), 28.544% of them occasionally, 22.684% of the practitioners sometimes and 21.739% of the practitioners rarely need **clinical epidemiology** information for their clinical practice. There is no significant difference between the experience and the need of clinical epidemiology information. **However it is differ from the practitioners' educational qualification and workplace and same as to gender**. (Sathivelmurugan, Allysornam, & Mohankumar)

3. 50.851% of the practitioners always, 34.026% of them sometimes and 9.263 % of them occasionally require **diagnosis/etiology** information. There is a significant difference between the experience of the practitioners and diagnosis/etiology information.

It is same as the educational qualification and workplace of the practitioners. At the same time it is reversed for Gender.(Sathivelmurugan, Allysornam, & Mohankumar)

4. Nearly 60% of the total practitioners always need this information, 29.868% and 6.049% of them sometime and occasionally require diagnostic procedures information for their professional **diagnostic procedures**. There is a significant difference between the experience of the practitioners and diagnostic procedure. **It is same as the gender and workplace, and it differs from educational qualification of the practitioners.** (Sathivelmurugan, Allysornam, & Mohankumar)

5. 63.894% of the total practitioners always, 27.410% of them sometimes and 5.48% of the practitioners occasionally need **differential diagnosis** information for practice. There is a significant difference between the experience of the practitioners and the need of differential diagnosis information. **It is same as to gender and workplace, and differs from educational qualification.** (Sathivelmurugan, Allysornam, & Mohankumar)

6. 58.601% always need **disease description** information, 29.490% sometimes and 6.616% of the practitioners occasionally require. There is a significant difference between the experience of the practitioners and the need of disease description. **Practitioners' gender, educational qualification and workplace have a significant difference between the disease description information.** (Sathivelmurugan, Allysornam, & Mohankumar)

7. Among the total practitioners (529), 62.571% of the practitioners always, 26.276% of them sometimes and 6.427 % of them occasionally need **disease complication** information. There is a significant difference between the experience of the practitioners and the need of disease complication information. **It is same as the workplace of the practitioners. However, it is reversed for the practitioner's gender and educational qualification.** (Sathivelmurugan, Allysornam, & Mohankumar)

8. Among the total practitioners (529), 60.302% always, 26.276% sometimes and 8.507 % occasionally need **disease prognosis** information. There is a significant difference between the experience of the practitioners and the need of disease prognosis information. Gender and workplace have a significant difference with the need of disease prognosis information. **But it is reversed into educational qualification**. (Sathivelmurugan, Allysornam, & Mohankuma)

9. Out of the total practitioners (529), 72.023 % of the practitioners always, 14.229 % sometimes and 3.592 % occasionally need the **treatment drugs therapy** information. There is a significant difference between the experience of the practitioners and the need of treatment drug therapy information. It is same as to the practitioners' workplace. **However, it is reversed for gender and educational qualification.** (Sathivelmurugan, Allysornam, & Mohankumar)

10. It is clear from the data, among the total medical practitioners (529), 60.491% always need this information, 27.032 % of them sometimes and 8.507 % of them occasionally

need drug adverse effect information. There is a significant difference between the experience of the practitioners and the need of **treatment drug effect** information. **It is same as to the practitioner's workplace and reversed to educational qualification and gender of the practitioners**. (Sathivelmurugan, Allysornam, & Mohankumar)

11. Among the total practitioners (529), 52.363% of the practitioners always, 27.032% sometimes and 11.720% of them occasionally need **treatment efficacy** information. There is a significant difference between the experience of the practitioners and the need of treatment efficacy information. **The significant difference is same as to the practitioner's gender, educational qualification and workplace.** (Sathivelmurugan, Allysornam, & Mohankumar)

12. Among the total practitioners (529), 43 % always need treatment follow-up information, 25.142% sometimes and 22.117% occasionally need **treatment follow-up** information. There is a significant difference between the experience of the practitioners and the need of follow-up information. **There is no significant difference between the gender, workplace and educational qualification of the practitioners.** (Sathivelmurugan, Allysornam, & Mohankumar)

13. 35.728% of them always, 27.788% of them occasionally and 24.575% of the medical practitioners sometimes require **emergency protocol** information. **It is similar to educational qualification and workplace of the practitioners. Gender is reversed.** (Sathivelmurugan, Allysornam, & Mohankumar).

Conclusion

From the above finding shows that medical practitioners information need is significantly differ from gender, educational qualification, work place. However, medical associations, government (both state and central) medical college librarians come forward to take organize information literacy programmes and hands on training to the medical practitioners at various levels based on their educational qualifications, experience, and workplace. It will be more useful for social development of a nation.

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